

AMENDMENTS TO THE CLAIMS

1-13. (Cancelled)

14. (Previously presented) A luciferase having resistance to a surfactant,
wherein said luciferase retains at least 85% of its activity in the presence of 0.1%
surfactant and

wherein said luciferase has at least one amino acid mutation compared to the native
luciferase amino acid sequence.

15. (Previously presented) The luciferase of Claim 14, wherein the surfactant is a cationic
surfactant.

16. (Previously presented) The luciferase of Claim 14, wherein the surfactant is a
quaternary ammonium salt.

17. (Previously presented) The luciferase of Claim 14, wherein the surfactant is a
benzalkonium chloride.

18. (Currently amended) The luciferase of Claim 14, which is a luciferase-derived from a
native luciferase from the order *Cleoptera*.

19. (Cancelled)

20. (Currently amended) The luciferase of Claim 14, which is derived from a native
luciferase of the family Pyrophorus or firefly.

21. (Currently amended) The luciferase of Claim 14, which is derived from a native
luciferase of GENJI firefly, HEIKE firefly, North American firefly or Russian firefly.

22. (Currently amended) The luciferase of Claim 14, which is derived from a native luciferase of *Pynophorous plagiophthalmus*, *Arachnocampa luminosa* or Rail worm.

23. (Previously presented) The luciferase of Claim 14, which comprises at least one substitution, deletion or insertion mutation in the amino acid sequence of the native luciferase.

24. (Previously presented) The luciferase of Claim 14, which comprises at least one mutation at the position corresponding to position 490 of the GENJI or HEIKE firefly luciferase.

25. - 31. (Canceled)

32. (Currently amended) A surfactant resistant luciferase produced by ~~the method of Claim 28~~ a method comprising:

introducing at least one mutation into the nucleic acid sequence encoding a luciferase to obtain a nucleic acid encoding a mutant luciferase,

expressing said nucleic acid encoding the mutant luciferase, and

selecting a mutant nucleic acid sequence which encodes a mutant luciferase which retains at least 85% of its activity in the presence of 0.1% surfactant.

33. (Withdrawn) A method for measuring the intracellular ATP comprising: extracting ATP from a cell sample in the presence of a surfactant,

adding a luminescence reagent containing the surfactant resistant luciferase of Claim 14 for a time and under conditions suitable to produce the emission of light, and detecting or measuring the emission of light.

34. (Withdrawn) A method for measuring the intracellular ATP comprising: extracting ATP from a cell sample in the presence of a surfactant,

adding a luminescence reagent containing the surfactant resistant luciferase of Claim 32 for

a time and under conditions suitable to produce the emission of light, and detecting or measuring the emission of light.

35. (New) A luciferase protein that retains more than 85% of its luciferase activity in 0.1% benzalkonium chloride compared to its luciferase activity in the absence of benzalkonium chloride produced by a process comprising:

culturing a bacterium comprising a polynucleotide obtained by amplifying a template nucleic acid prepared from GENJI firefly, HEIKE firefly, North American firefly, Russian firefly, *Pyrophorus plagiophthalmus*, *Arachnocapa luminosa*, or Rail worm using the oligonucleotide primers having the sequence of SEQ ID Nos: 1 and 2 that encodes a luciferase protein that retains more than 85% of its luciferase activity in 0.1% benzalkonium chloride compared to its luciferase activity in the absence of benzalkonium chloride, and

recovering from the culture said luciferase protein.

36. (New) A luciferase protein that retains more than 85% of its luciferase activity in 0.1% benzalkonium chloride compared to its luciferase activity in the absence of benzalkonium chloride produced by a process comprising culturing a bacterium comprising a polynucleotide encoding a luciferase protein that retains more than 85% of its luciferase activity in 0.1% benzalkonium chloride compared to its luciferase activity in the absence of benzalkonium chloride, and

recovering from the culture said luciferase protein.

37. (New) The luciferase protein of claim 14, in which the luciferase comprises the amino acid sequence PXAVVV_{LX₄₉₀}GKXMTE, in which X₄₉₀ is an amino acid other than glutamic acid and X is any amino acid.

38. (New) The luciferase protein of claim 15, in which the luciferase comprises the amino acid sequence PXAVVVLX₄₉₀KGKXMTE, in which X₄₉₀ is an amino acid other than glutamic acid and X is any amino acid.

39. (New) The luciferase of claim 24, wherein the luciferase comprises the amino acid sequence PXAVVVLX₄₉₀KGKXMTE, in which X₄₉₀ is an amino acid other than glutamic acid, and X is any amino acid.

40. (New) The luciferase of claim 35, wherein the luciferase comprises the amino acid sequence PXAVVVLX₄₉₀KGKXMTE, in which X₄₉₀ is an amino acid other than glutamic acid and X is any amino acid.

41. (New) A firefly luciferase that retains at least 85% of its activity in 0.1% benzalkonium chloride and has a mutation of the amino acid corresponding to amino acid 490 of HEIKE firefly luciferase to an amino acid other than glutamic acid.